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Change in albuminuria predicts cardiovascular outcome in normotensive patients with type 2 diabetes and microalbuminuria

Microalbuminuria is defined as a very small amount of albumin in the urine and is an early sign of diabetic kidney disease.

Microalbuminuria is also associated with an increased risk of cardiovascular disease in both diabetic and non-diabetic patients.

(1) Many patients with diabetes and microalbuminuria are treated with ACE-Inhibitors (ACE) Angiotensin Receptor Blockers (ARB) to protect their kidneys. Treatment with ACE or ARB also reduces the blood pressure and decreases the risk of cardiovascular disease. It has not been clear if the reduction of cardiovascular risk is simply due

to the decrease in blood pressure or whether the decreased risk is related in some way to changes in albuminuria.

In order to determine whether a sustained change in the levels of albuminuria predicts cardiovascular outcomes in normotensive patients with type 2 diabetes, investigators in the Netherlands followed 67 patients prospectively for a mean of 4 years.

(2) The patients had participated in a 20 week study of the short term effects of an ARB in microalbuminuria. They did not have cardiovascular disease or elevated creatinine levels and were normotensive. Their albumin excretion was measured at baseline, at one year, and at the end of the study. They were followed for cardiovascular disease or death over time. Most (93%) were treated with ACE/ARB at the beginning and throughout follow-up. Over the 4 year period, the level of albuminuria progressed rapidly in a subgroup, was stable in some, decreased slightly in others. There were no significant changes in the blood pressure in any of the three groups. After adjusting for sex,

age, systolic blood pressure, cholesterol, and smoking, increases in albuminuria remained a significant predictor of cardiovascular disease and death (HR 5.1, 95% CI 1.5-18.1), $p=0.01$. Despite the small number of patients, this is one of the first studies to show that risk of cardiovascular disease is related to changes in albuminuria levels and those with rapid progression were at highest risk. They conclude that changes in albuminuria during treatment reveal important information that can prompt clinicians to be more aggressive in risk reduction efforts for normotensive individuals with elevated levels of urinary albumin.

1. Gerstein HC, Mann JF, et al HOPE Study Investigators. Albuminuria and risk of cardiovascular events, death, and heart failure in diabetic and nondiabetic individuals. JAMA 2001; 286:421-426.

2. Zandbergen AAM, Vogt L, Zeeuw DD, Lamberts SWJ, et al. Change in albuminuria is predictive of cardiovascular outcome in normotensive patients with type 2 diabetes and microalbuminuria. Diabetes Care 2007;30:3119-3121.

Is it Microalbuminuria?

Measure urinary albumin-creatinine ratio (ACR) in a spot urine sample.

Category	Spot (mg/g creatinine)
Normoalbuminuria	<30
Microalbuminuria	30-300
Macroalbuminuria	>300

FIGURE 1: PHYSICIAN OFFICES PARTICIPATING IN THE DIABETES QUALITY CARE MONITORING SYSTEM (DQCMS) PROJECT, October 2007 (N = 39)

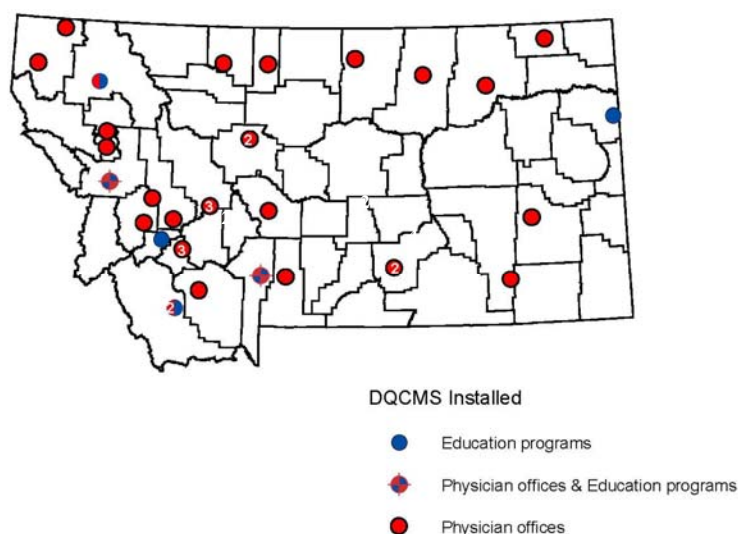


FIGURE 2: DIABETES CARE INDICATORS FROM MONTANA PHYSICIAN OFFICES PARTICIPATING IN THE DCMS/ DQCMS PROJECT, BASELINE (N = 22 CLINICS; 3,629 PATIENTS) AND JANUARY 2008 (N = 34 CLINICS; 7,224 PATIENTS)

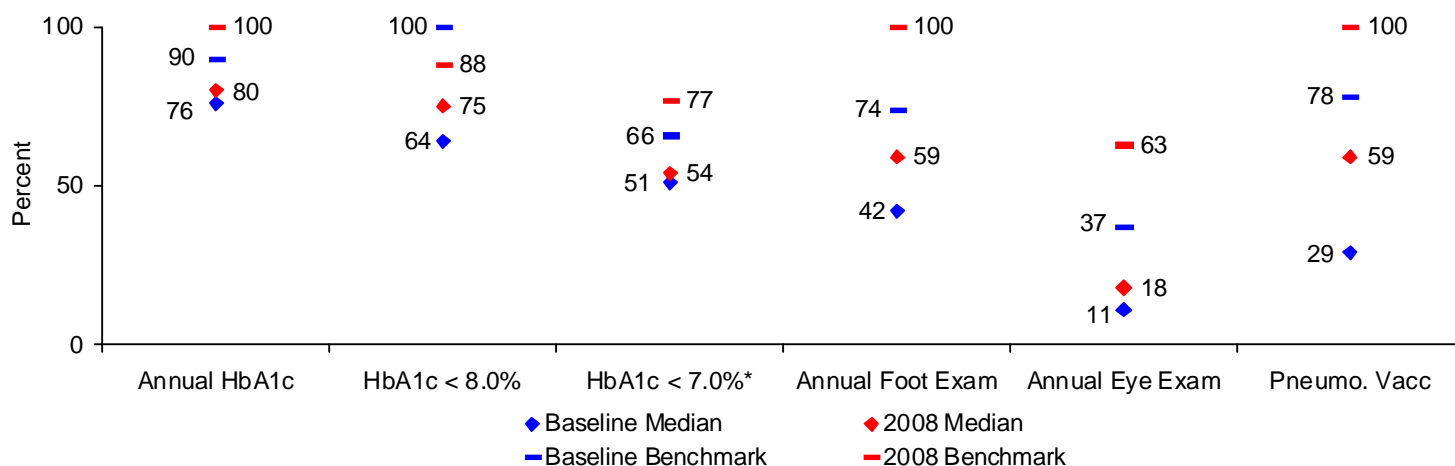
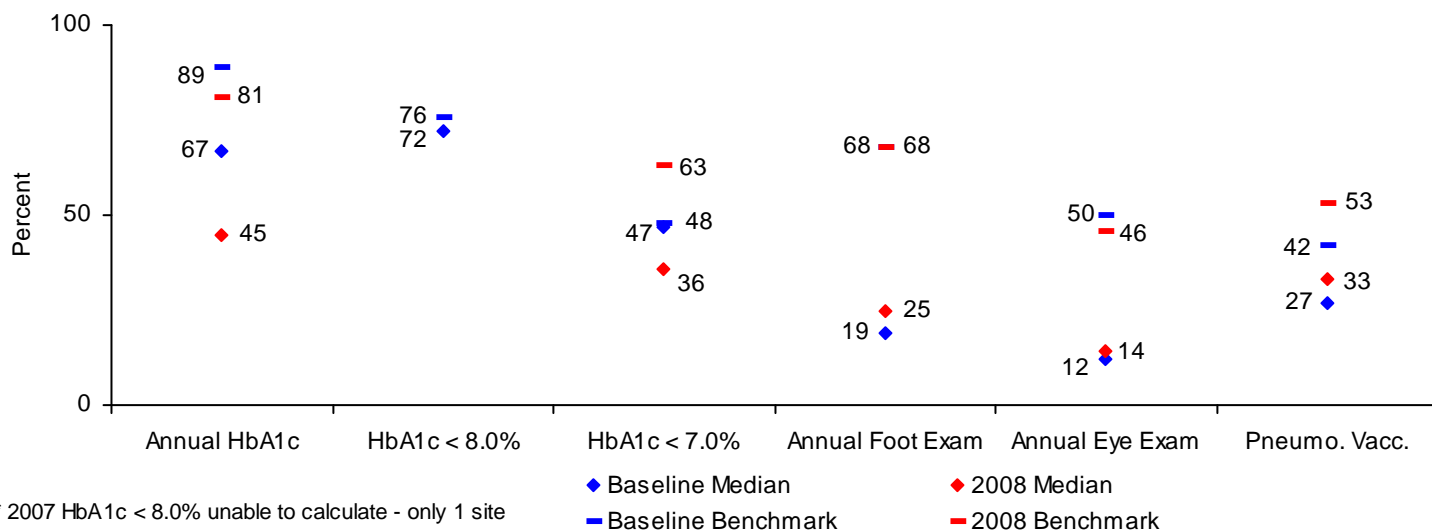


FIGURE 3: DIABETES CARE INDICATORS FROM MONTANA DIABETES EDUCATION PROGRAMS PARTICIPATING IN THE DQCMS PROJECT, BASELINE (N = 4 SITES; 912 PATIENTS) AND JANUARY 2008 (N = 4 SITES; 1,062 PATIENTS)



SUCCESSFUL QUALITY IMPROVEMENT ACTIVITIES

Teamwork yields substantial benefit in diabetes care at North American Indian Alliance

The North American Indian Health Alliance is an Urban Indian clinic located in Butte, Montana. The diabetes team at the North American Indian Alliance includes their health coordinator, Patty Boggs, Clinic RN, Mary Sue Hewankorn, Ida Reighard, RN, CDE and Dr. McGree.

The diabetes team at the clinic utilizes the Diabetes Quality Care Monitoring System (DQCMS) as their tracking system for diabetes care. Mary Sue utilizes this system to keep people up to date in all areas of their diabetes care. She notifies patients when an appointment is needed at the clinic to become current in their standards of care to prevent complications related to their disease. She also uses ABC letters (found in letter section of DQCMS) to educate and alert patients of their health status. Each patient also receives a card with their lab values, eye exam date, etc. recorded on it so they will have a reminder of when they are due for these services. The DQCMS system has also been very helpful sending reminder letters regarding vaccinations (also found in letter section of DQCMS). The flu and pneumonia vaccine letters have worked as an educational tool for patients. After receiving the letter, they return to the clinic and agree to these vaccines.

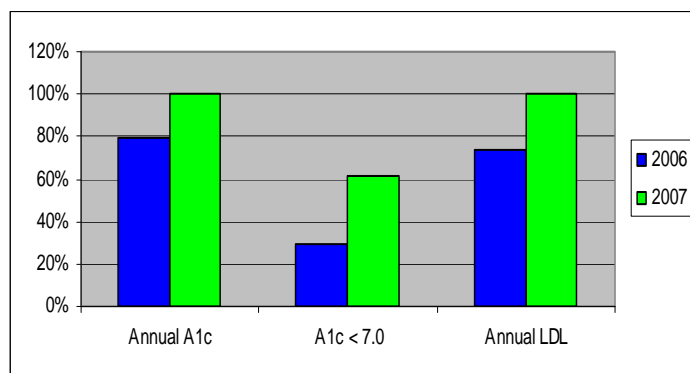
Ida, the diabetes educator, meets with the youth group monthly in an effort to prevent diabetes in this high risk population. The focus is usually healthy eating and increasing activity in their lives. There are always healthy snacks introduced to the kids, as well as fun games that involve exercise. Ida also presents at the quarterly women's wellness gathering where she talks about healthy eating and diabetes management and prevention. Brenda Bodner, RD from Flathead Tribal Health Department has come to the center twice to give presentations to the patients on healthy eating with diabetes. Dr. Curt, a podiatrist from Browning, held a foot clinic for the diabetes patients and provided education on the importance of foot care.

The Diabetes group at North American Indian Alliance meets weekly for talking circle. Ida uses the curriculum, "Balancing Your Life with

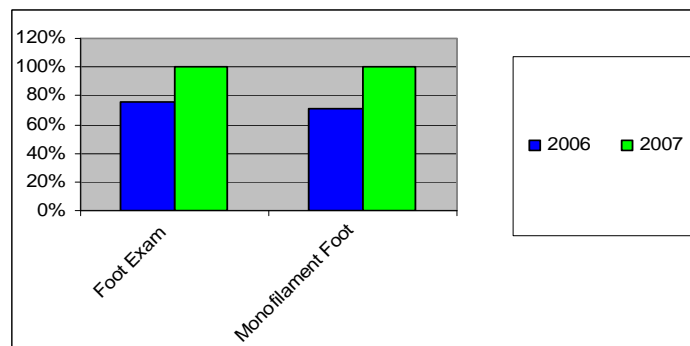
Diabetes" (available on the Indian Health Service website) as a guide. The group also uses this time for support. Many have suffered complications related to their disease and have a lot to offer for other group members. This group has grown in size from 5 to 15 over the last year.

Date from DQCMS in 2006 and 2007 show improved care and outcomes for patients with diabetes at the North American Indian Alliance.

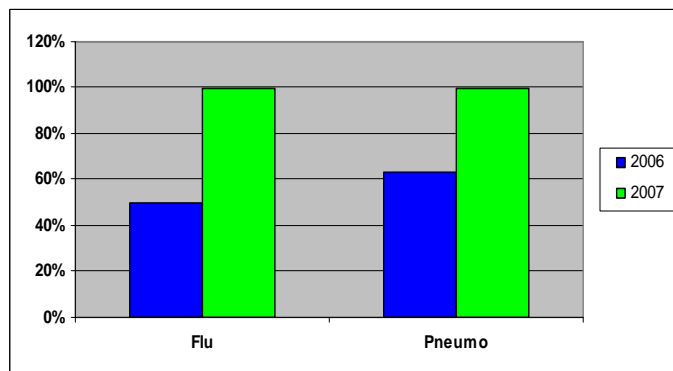
A1c and LDL Levels
2006 & 2007



Foot Care
2006 & 2007



Immunizations
2006 & 2007



Reported by Diabetes Team
North American Indian Alliance

Save the Dates!

WHAT: Cardiovascular Health Summit
WHEN: April 4, 2008
WHERE: Holiday Inn Downtown at the
Park, Missoula, MT

(For more information contact
Ava Griffenberg at 406-444-5508)

WHAT: Wyoming Chronic Disease
Conference

WHEN: May 7 – 8, 2008
WHERE: Little America Hotel
Cheyenne, WY

(For more information call
Betty Holmes, MS, RD at 307-777-6011)

WHAT: Diabetes Professional Conference
WHEN: October 23-24, 2008
WHERE: Holiday Inn, Bozeman, MT

(For more information contact
Susan Day 406-444-6677)

WHAT: Work Life Wellness Conference
WHEN: May 21 – 22, 2008
WHERE: SunSpree Holiday Inn, West
Yellowstone, MT

(For more information contact
Ava Griffenberg at 406-444-5508)



Welcome Back To:

- Missoula Indian Health Center

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